

AMENDMENTS TO THE CLAIMS

A detailed listing of all claims that are, or were, in the present application, irrespective of whether the claim(s) remain(s) under examination in the application is presented below. The claims are presented in ascending order and each includes one status identifier. Those claims not cancelled or withdrawn but amended by the current amendment utilize the following notations for amendment: 1. deleted matter is shown by strikethrough for six or more characters and double brackets for five or fewer characters; and 2. added matter is shown by underlining.

1-21. (Cancelled).

22. (Currently Amended) An adapter for coupling an object to be treated with a laser treatment device ~~with an object to be treated~~ comprising a scanning device for scanning a laser beam, the adapter comprising:

an adapter input side, the adapter being fixateable relative to the laser treatment device via a locking mechanism;

the adapter being capable of transmitting [[a]] the laser beam to the object along an adapter beam path, the laser beam having been supplied to the adapter input side and scanned over a region by the scanning device;

a reference structure, the reference structure being located in the adapter beam path ~~and optically detectable such that the reference structure can be illuminated~~ by laser radiation scanned by the scanning device across the region;

wherein a position of the reference structure is optically detectable from absorption or reflection of the laser radiation by the reference structure; and

wherein the adapter can be brought into contact with the object to position the object relative to the laser treatment device.

23. (Previously Presented) The adapter as claimed in Claim 22, wherein optical detection of the reference structure allows the laser treatment device to check alignment of the adapter.

24. (Previously Presented) The adapter as claimed in Claim 23, wherein the reference structure comprises at least one spatial zone within the adapter beam path, which differs from a remainder of the adapter beam path in at least one optical property.

25. (Previously Presented) The adapter as claimed in Claim 22, further comprising an adapter output side, through which laser radiation supplied to the adapter input side exits and which can be brought into contact with a deformable surface of the object and thereby imparts a desired shape to the deformable surface.

26. (Previously Presented) The adapter as claimed Claim 22, wherein the reference structure reflects the actual spatial position of the adapter.

27. (Previously Presented) The adapter as claimed in Claim 25, wherein the reference structure comprises marking structures which encode information about the adapter.

28. (Previously Presented) The adapter as claimed in Claim 27, wherein the reference structure comprises spatial zones in the adapter beam path, which differ from a remainder of the adapter beam path in at least one optical property.

29. (Previously Presented) The adapter as claimed in Claim 28, wherein the optical property comprises refractive index.

30. (Previously Presented) The adapter as claimed in Claim 22, wherein the adapter beam path at least partially comprises a material which is transparent to laser radiation.

31. (Previously Presented) The adapter as claimed in Claim 25, further comprising a substantially cylindrical or substantially frustoconical body, one end surface of which acts as the adapter output side, the adapter output side conforming to the desired shape of the deformable surface.

32. (Previously Presented) The adapter as claimed in Claim 25, further comprising a substantially cylindrical or substantially frustoconical body, one end surface of which acts as the adapter input side.

33. (Previously Presented) The adapter as claimed in Claim 22, further comprising a flange for engagement to the locking mechanism.

34. (Previously Presented) The adapter as claimed in Claim 22, further comprising a suction portion for attachment to the object.

35. (Previously Presented) The adapter as claimed in Claim 27, wherein the information encoded includes the desired shape defined by the adapter output side.

36. (Previously Presented) The adapter as claimed in Claim 35, wherein the information encoded includes refractive properties of the adapter output side.

37. (Previously Presented) The adapter as claimed in Claim 22, wherein the adapter comprises a contact glass for eye surgery.

38. (Currently Amended) Laser treatment device emitting a laser beam and comprising:

a beam scanning unit for scanning the laser beam over an object to be treated;

an adapter, having an adapter input side, the adapter being fixatable relative to the laser processing treatment device via a locking mechanism,

the adapter being capable of being brought into contact with the object to position the object relative to the laser treatment device, wherein the adapter transmits [[a]] the laser beam to the object along an adapter beam path, the laser beam having been supplied to the adapter input side by the laser treatment device and scanned over a scanning region by the beam scanning unit; and

a reference structure located in the adapter beam path within the scanning region such that the reference structure can be illuminated by the laser beam scanned by the beam scanning unit;

~~a beam deflecting unit for scanning a laser beam over the region;~~

a detecting unit for optical detection of the reference structure illuminated by the laser beam; and

a control unit, which receives output from the detecting unit[[],] and controls the beam deflecting unit[[],] when illuminating the scanning region and determines [[the]] an actual position of the adapter on the basis of the ~~optically detected reference structure and~~ actual scanning position of the scanned laser beam and the output of the detecting unit, and which considers the actual position when controlling the beam deflecting unit.

39. (Previously Presented) The laser treatment device as claimed in Claim 38, wherein the control unit considers a difference between a desired position of the adapter and the actual position of the adapter when controlling the beam deflecting unit.

40. (Previously Presented) The laser treatment device as claimed in Claim 39, wherein the control unit determines a difference between the desired position and the actual position of the adapter and blocks treatment if the difference exceeds a threshold value.

41. (Currently Amended) A laser treatment device for application of energy of a laser energy beam to a deformable surface of an object, the laser treatment device comprising:  
a beam deflecting unit that scans the laser beam over the object to be treated:  
an adapter having an adapter input side, which can be fixated via a locking mechanism;  
the adapter being capable of transmitting [[a]] the laser beam to the object along an adapter beam path, said laser beam having been supplied to the adapter input side and

scanned over a scanning region by the beam deflecting unit and the adapter including a reference structure, the reference structure being located in the adapter beam path within the scanning region and optically detectable illuminatable by laser radiation scanned across the scanning region;

the adapter including an adapter output side which can be brought into contact with the deformable surface to position the object relative to the laser treatment device and which imparts a desired shape to the deformable surface when the adapter is in contact with the object, and wherein the reference structure comprises marking structures which encode information about the adapter;

~~a beam deflecting unit for scanning a laser beam over the region,~~

a detecting unit for optical detection of the marking reference structures illuminated by the laser beam, and

a control unit which receives output from the detecting unit, controls the beam deflecting unit, determines the information about the adapter and considers the information when controlling the beam deflecting unit.

42. (Previously Presented) The laser treatment device as claimed in Claim 41, further comprising a pulsed treatment laser for an ophthalmic procedure, wherein the object comprises the cornea, and the control unit controls the beam deflecting unit and the treatment laser such that the laser beam generates optical breakthroughs at predetermined locations in the cornea and, in doing so, considers the desired shape of the surface of the cornea, and wherein the desired shape is identified by said information.

43. (Previously Presented) The laser treatment device as claimed in Claim 41, further comprising a pulsed treatment laser for an ophthalmic procedure and by a device for attenuating laser beam energy to allow optical detection of the reference structure.